

## ABSTRACT

A method of fabricating a dynamic random access memory cell is provided. A substrate having a patterned mask layer thereon and a deep trench therein is provided. The patterned mask layer exposes the deep trench. A deep trench capacitor is formed inside the deep trench. Thereafter, a trench is formed in the substrate on one side of the deep trench capacitor. The trench exposes a portion of the upper electrode of the deep trench capacitor and a portion of the substrate. After that, a semiconductor strip is formed in the trench. A gate dielectric layer is formed over the substrate to cover the exposed semiconductor strip and the substrate. A gate is formed over the gate dielectric layer such that the gate and the semiconductor strip crosses over each other, and the gate-covered portion of the semiconductor strip serves as a channel region.